I. Title: Analytical Support for Risk and Technology Review (RTR) Rulemaking and the National-Scale Air Toxics Assessment (NATA)
Contractor Name: ICF, International
Contract #: EP-W-12-010
WA#: 3-32

II. Work Assignment Manager (WAM):

WAM Name: Terri Hollingsworth
U.S. Environmental Protection Agency
OAQPS/HEID/ATAG (C539-02)
Research Triangle Park, NC 27711
919-541-5623

Alt. WAM Name: Ted Palma
U.S. Environmental Protection Agency
OAQPS/HEID/ATAG (C539-02)
Research Triangle Park, NC 27711
919-541-5470

III. Background:

The Clean Air Act (CAA) directs the U.S. Environmental Protection Agency (EPA) to determine the risk remaining after the application of emission control technology standards and to review the adequacy of these standards. This section of the CAA states that "Emission standards promulgated under this subsection shall provide an ample margin of safety to protect public health in accordance with this section unless the Administrator determines that a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental impact." This CAA language refers to the Risk Management Framework developed in the benzene decision and EPA is required to use this framework in addressing residual risks. The CAA further states that if the technology standards, "... do not reduce lifetime excess cancer risk to the individual most exposed to emissions ... to less than one in one million, the Administrator shall promulgate standards under this subsection for such source category." This language requires EPA to develop standards for source categories that cannot show low cancer risk. EPA has interpreted this language to mean that there is no need to regulate low risk source categories.

In addition to assessing the cancer risk via inhalation of hazardous air pollutants, EPA must also assess the multipathway and ecological risk associated with these emissions from source categories to determine any additional risk to human or adverse environmental effects. In conducting these assessments, EPA has developed and plans to use an overall total risk assessment approach in the form of a modeling system called the Total Risk Integrated Methodology (TRIM).

The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing comprehensive evaluation of air toxics in the U.S. EPA developed the NATA as a state-of-the-science screening tool to prioritize pollutants, emission sources and locations of interest to gain a better

understanding of risks. NATA provides estimates of the risk of cancer and other serious health effects from inhalation exposure to air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types and locations which are of greatest potential concern in terms of contributing to population risk. This in turn helps air pollution experts focus limited analytical resources on areas and/or populations where the potential for health risks are highest. Assessments include estimates of cancer and non-cancer health effects based on chronic exposure from outdoor sources. Assessments provide a snapshot of the outdoor air quality and the risks to human health that would result if air toxic emissions levels remained unchanged.

IV. Description and Tasks:

Task 1: The Contractor shall develop a work plan and cost estimate in accordance with contract specifications. This work is a continuation of work performed under WA 2-20 of this contract; however, it reflects current status and conditions and does not duplicate any previous work.

Task 2: The Contractor shall work with the WAM to develop HEM3 model input data for approximately 6 source sectors of interest in RTR rulemakings. This will include working with the NEI, TRI, and other emission databases, as well as EPA source sector engineers. Further, the Contractor shall revise and update the modeling data sets based on comments and feedback received from the WAM in response to various external and internal EPA reviews. The revised data sets shall be prepared in a model-ready format. The Contractor shall also perform related analytical tasks such as analyses of input datasets, queries involving the RTR input data, and additional processing and modeling. These analyses will include, but are not limited to, preparation of the most recent NEI emission data for national-scale HEM3 modeling for NATA, follow-up analyses related to previous residual risk assessment, and other analyses of air toxics.

Task 3: For the multipathway and ecological risk assessments, the Contractor shall conduct human multipathway and ecological risk assessments for source sectors that emit persistent and bioaccumulative hazardous air pollutants. The Contractor shall use the previously developed TRIM baseline scenario to conduct analyses, evaluate exposure and risk modeling results, and develop risk assessment findings for use in RTR rulemaking. The Contractor shall make modifications to the modeling scenario as necessary to address uncertainties, refine the scenario for specified source sectors, and meet other multipathway and ecological risk assessments needs as directed by the WAM. The contractor shall also continue 2 ongoing and initiate 1 new site-specific multipathway and ecological risk assessments based on previously develop methodologies at sites identified and developed during the previous work assignment (WA 2-20) under this contract.

Task 4: The Contractor shall provide limited technical support in the use of TRIM as directed by the WAM. This effort will involve responding to questions and troubleshooting issues associated with the installation and use of TRIM. The Contractor shall also research and advise the WAM of any software modification necessary to resolve any substantial issues in the installation and use of TRIM.

Task 5: The Contractor shall expand the multipathway and ecological risk assessment capabilities of TRIM by parameterizing the model for 1 pollutant to be identified by the WAM. This task will involve the gathering of appropriate data, assessment of exposure pathways, and design of modeling approach (to be approved by the WAM), followed by model implementation, evaluation and documentation.

Task 6: The Contractor shall conduct the exposure assessments for the NATA using HAPEM or other current exposure model identified by the WAM. This effort will involve, but is not limited to, preparing air quality data in model-ready format, QA/QC of facility-specific information, conducting the exposure modeling, and processing and analysis of results.

Task 7: The Contractor shall document the input data that are compiled and processed for inhalation, multipathway, and ecological assessment using HEM3, TRIM, HAPEM and other appropriate exposure and risk models. The Contractor shall prepare the documentation in a format suitable for internal and external review. These reports shall provide, where appropriate, background text describing the data preparation, analysis, and formatting methodology and process, detailed data tables of modeling inputs, summary tables of key data points, uncertainties, limitations, and data gaps associated the assessments. In addition, the Contractor shall work with the WAM in developing textual and visual communication materials (maps and charts) for the websites associated with the RTR rulemaking and the NATA.

Task 8: The contractor shall update the health effects fact sheets, part of the Health Effects Notebook, for approximately 20 selected hazardous air pollutants to be identified by the WAM. The update shall following the format consistent with other pollutants currently available in Health Effects Notebook for Hazardous air Pollutants (http://www.epa.gov/airtoxics/hlthef/hapindex.html). Specifically, the Contractor shall update the toxicological information and prepare a graph with all the available health effects values using the data found at http://www.epa.gov/ttn/atw/hlthef/hapintro.html#ds).

Task 9: The Contractor shall attend (in person or by phone) and participate in intermittently scheduled RTR, multipathway, ecological, and NATA team meetings to be held at the EPA campus in Research Triangle Park, NC. The WAM will notify the Contractor in advance of the meeting date, time, location, and agenda, and will discuss whether the Contractor shall attend in person or by phone.

V. Quality Assurance Requirements:

It is the policy of OAQPS that within the constraints of available resources, QA activities shall be conducted to assure environmental data generated, processed or used for its program requirements will be of known quality and will achieve prescribed data quality objectives. Furthermore, the data will be adequate and sufficient for their intended use. This Work Assignment involves one or more environmental data operations (EDO), defined as "work performed to obtain, use or report information pertaining to environmental processes and conditions." As such, the Contractor shall be in compliance with the EPA Quality Manual for

Environmental Programs 5360 A1, May 5 2000 and The American National Standard-Specifications and Guidelines for Environmental Data Collection and Environmental Technology Programs (ANSI/ASQC-E4-1994). The quality assurance policy of EPA requires every EDO to have a written and approved quality assurance project plan (QAPP) prior to the start of the EDO. (NOTE: OAQPS utilizes a four tiered project category approach to its QA Program in order to focus QA. Category I involves the most stringent QA approach, whereas Category IV is the least stringent. The WAM, in consultation with the Deputy Quality Assurance Officer, has designated a Category II QAPP for this Work Assignment. The QAPP should address the appropriate requirements in EPA QA/G-5M, EPA Guidance for Quality Assurance Project Plans for Modeling (http://www.epa.gov/quality/qs-docs/g5m-final.pdf). See Table 2-1 in the OAQPS Quality Management Plan (QMP) for additional detail on items to include in the QAPP (http://core.rtpnc.epa.gov/core/docs/OAQPS%20QMP.pdf). Since this work assignment is a continuation of a previous work assignment (2-20) and the scope and data quality objectives associated with the project have not changed, the previously approved QAPP (7/1/2013) is still in effect for this work assignment.

VI. Deliverables:

The Contractor shall provide monthly progress reports in accordance with the terms of the contract. The Contractor shall submit work products in electronic form. The Contractor shall deliver to the WAM each draft and final work product in an electronic format that is readable by Windows-based word processing, graphics, spreadsheet, and database programs, as appropriate.

	Task	Approximate Due Date
1	Work Plan	Within 20 days of effective date of WA
2	HEM3 input data for RTR	Ongoing*
2,6	HEM3 summary reports and materials	Ongoing*
3,6	Multipathway and ecological risk assessment results and documentation	Ongoing*
5	TRIM parameterization	August 3, 2015
6	modeling for NATA	Ongoing*
7	NATA results and documentation	September 30, 2015
8	Health Effects Notebook update	March 18, 2016

*The actual due dates will vary depending on the source sector involved and any pending court-negotiated schedule. EPA will finalize these due dates through phone calls and the RTR and NATA team meeting process.